

## REMARKS

Claims 1-6 are pending. Claims 1-6 are rejected. Claims 1, 4 and 5 are amended and new claims 7-19 added. Support for the amendments and new claims can be found throughout the application, for instance in the claims, the Examples including Example 5, and in the specification including pages 6 (para. 2) and 8 (para. 2), as originally filed. No new matter is added. Claims 1-19 are submitted for further consideration at this time. Applicants respectfully request reconsideration and withdrawal of all rejections.

### Claim Rejections - 35 U.S.C. §102

Claim 1 is rejected under 35 U.S.C. §102(b) as anticipated by Manzer et al. (U.S. 5,243,106). It is alleged that Manzer et al. teaches each and every element of the claimed invention.

Applicants respectfully disagree. The present invention as set forth in claim 1 is concerned with a process in gaseous phase to obtain CFC 113a starting from CFC 113, wherein CFC 113, optionally diluted with a gas inert under reaction conditions, is let flow on a catalyst consisting of aluminum fluoride in a fixed or fluidized bed at a reaction temperature of from 50°C to less than 200 °C.

Applicants submit that the claimed invention is neither taught nor suggested by Manzer et al. As noted above, the claimed invention requires a reaction temperature of from 50°C to less than 200 °C. Applicants urge that no such claim feature is taught or suggested by Manzer et al. Indeed, at the bottom of page 3 of the Office Action, it is

admitted that Manzer et al. fails to teach or suggest such lower temperatures, as required by the claimed invention. Applicants would also like to point out that Manzer et al. is unable to teach or suggest the lower temperatures as set forth in the inventions of new claims 8 and 16. Therefore, in that Manzer et al. fails to teach or suggest each and every element of the claimed invention, Applicants urge withdrawal of the rejection.

### **Claim Rejections - 35 USC §103**

Claims 1-6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Manzer et al. It is alleged that it would have been obvious to optimize the reaction conditions of Manzer et al. to have optimized yield.

Applicants respectfully disagree. The invention of claim 1 is discussed above.

Applicants again submit that the claimed invention is neither taught nor suggested by the Manzer et al. reference. As discussed above, Manzer et al. fails to teach or suggest the lower reaction temperature as required by the claimed invention, including the inventions of claims 1, 8 and 16. Moreover, in that Manzer et al. fails to teach or suggest any reaction temperature of from 50°C to less than 200 °C, as required by claim 1, and instead teaches the use of much higher temperatures such as between 300°C and 400°C, the reference can only be considered to teach away from the claimed invention. In fact, such teaching away is confirmed by the Blanchard et al. reference (Chem abs 673), discussed below, which also only teaches temperatures much higher than that required by the claimed invention, for example a temperature of at least 385°C with an AlF<sub>2</sub> catalyst, to achieve acceptable conversion of CFC-113.

However, Applicants even further point out that those of ordinary skill in the art would have no motivation to optimize the processes of Manzer et al. by reducing the temperature in order to achieve an industrially acceptable product yield. The primary concern of Manzer et al. is the manufacture of CFC-114a, whereas CFC 113a is formed as a by-product (1.4 - 10.7% of the products) in the Examples. Applicants urge that nothing in Manzer et al. could provide any reasonable expectation that a change in reaction conditions would provide for an improved yield, for example at least 77.3% by weight as in the invention of claim 8. In fact, those of ordinary skill in the art reviewing the Examples of Manzer et al., with regard to the formation of CFC-113a and conversion of CFC-113, would recognize the following concerning the influence of temperature:

Example	Temperature (°C)	CFC-113 Conversion	CFC-113a Yield	CFC-113 /CFC-113a
II	375	96.2%	10.7%	26.2%
III	400	99.9%	1.4%	6.7%

Accordingly, those of ordinary skill in the art would understand that when temperature is reduced, CFC-113a yield may rise but CFC-113 conversion would fall, and therefore, the content in the mixture CFC-113a/CFC-113 becomes even more important. Also, one of ordinary skill in the art would recognize that when temperature rises, the yield of CFC-113a decreases while selectivity improves. Consequently, those of ordinary skill in the art would not reasonably expect that in operating at significantly lower reaction temperature (more than 175°C below the example values), both the CFC-113a yield and selectivity

would amount to higher and industrially usable levels. Indeed, such an occurrence could only be considered a radical change in technology rather than a result of optimization.

Therefore, Applicants urge that Manzer et al. fails to teach or suggest the claimed invention. The rejection should be withdrawn.

Claims 1-6 are rejected under 35 USC §103(a) as being obvious over Chem abs 673 (CA:113-61673). It is alleged that it would have been obvious to optimize the temperature of the Chem abs 673 process so as to optimize yield/purity of the desired product.

Applicants respectfully disagree. The invention of claim 1 is discussed above.

Applicants submit that Chem abs 673 fails to teach or suggest the claimed invention. Applicants first note that Chem abs 673 is entirely silent concerning any reaction temperature. However, Applicants further point out that Chem abs 673 corresponds to the Blanchard et al. reference, a copy of which is included herein, submitted as the A1 reference in the Information Disclosure Statement filed June 10, 2002.

Reviewing Blanchard et al., it can be seen that the reaction temperatures range from between 370°C and 400°C. Applicants point out that these reaction temperatures are similar to those disclosed by Manzer et al., which is typical for such types of reactions, whereas the reaction temperatures required by the claimed invention are significantly lower and could not have been reasonably expected to be a technically viable condition. That is, in the absence of any disclosure by the cited reference concerning much lower reaction temperatures as claimed, those of ordinary skill in the art could not have the requisite motivation to try and optimize the conditions of Blanchard et al. by employing such lower reaction temperatures.

Applicants note that this is confirmed by the teachings at pages 125-126 of Blanchard et al. which show that the conversion of CFC-113 depends strongly on temperature and catalyst activity, wherein:

- with  $\text{C}_2\text{O}_3/\text{AlF}_3$ , a temperature of 370°C is sufficient;
- with  $\text{AlF}_3$ , good conversion is obtained at 385°C;
- $\text{Cr}_2\text{O}_3/\text{C}$  is used at 400°C.

Accordingly, those of ordinary skill in the art would consider a temperature change of 15°C to be quite significant in these types of reactions concerning CFC-113. Consequently, a reaction temperature more than 170°C lower than that disclosed in Blanchard et al., such as in the claimed invention, could only be considered as a radical change in technology including reaction conditions, and not a mere optimization.

In fact, those of ordinary skill in the art reviewing Blanchard et al. would recognize that with the  $\text{AlF}_3$  catalyst, a temperature of at least about 385°C is required to obtain acceptable conversion of CFC-113. Moreover, since those of ordinary skill in the art reviewing Blanchard et al. would understand that CFC-113 conversion decreases and CFC-113a yield and selectivity is reduced with a lowering of reaction temperature, Blanchard et al. could only be considered to teach away from lower temperatures, as required by the claimed invention. The rejection should be withdrawn.

Accordingly, in that the cited references not only fail to teach or suggest, but actually teach away from, the claimed invention, Applicants urge withdrawal of all rejections.

In view of the amendments and remarks above, Applicants submit that this application is in condition for allowance and request favorable action thereon.

In the event this paper is not considered to be timely filed, Applicants hereby petition for an appropriate extension of time. The fee for this extension may be charged to our Deposit Account No. 01-2300. The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment associated with this communication to Deposit Account No. 01-2300, referencing Attorney Docket No. 108910-00052.

Respectfully submitted,

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Enclosures: Blanchard et al., Heterogeneous Catalytic Reactions of Chlorofluorocarbons, Applied Catalysis, 1990, 59:123-128